SPRUCE BUDWORM DEFOLIATION

1974

USDA, FOREST SERVICE
NORTHEASTERN AREA
STATE and PRIVATE FORESTRY
FOREST PEST MANAGEMENT

REPORT NO. S-5-74

1974 SPRUCE BUDWORM SURVEY

OTTAWA NATIONAL FOREST

INTRODUCTION

The spruce budworm, Choristoneura fumiferana (Clem.), has been causing defoliation of balsam fir and white spruce to a detectable degree in small areas of the forest since 1970. White spruce in and around the seed production area on U.S. Highway 45 south of Watersmeet was reported by Erickson to be severely defoliated for the third year in 1972.[1/] He also reported moderate to heavy defoliation of spruce and fir in T46N, R41W occurring for the second year. No survey was made in 1973.

SURVEY METHODS

An aerial survey was flown August 1 covering the south-central portion of the forest. Forest personnel had reported defoliation in the area. Standard sketch-mapping methods were used with east-west flight lines spaced 1 to 2 miles apart.

A combined egg-mass and defoliation survey was completed August 6. Thirteen plots were sampled within and near the damaged stands. Each plot consisted of 3 trees with 3 fifteen inch twigs taken from mid-crown level. Only balsam fir was sampled.

The number of egg-masses were counted and separated as viable or parasitized. Defoliation of each sample twig was classed as to the degree of current feeding as follows:

Defoliation	Description	Class
0-5%	None	0
6-25%	Light	1
26-50%	Moderate	2
51-75%	Heavy	3
76-100%	Severe	4

1/ Erickson, Glen 1972. Aerial survey of aspen and balsam fir-spruce defoliation on the Ottawa N.F., Michigan - 1972. Northeastern Area State & Private Forestry, St. Paul F.O., Report S-72-3.

The sample branch classes were averaged to determine the overall plot defoliation class.

RESULTS AND DISCUSSION

A total of 64,900 acres are contained within the boundaries of the 11 outbreak areas defined by the aerial survey. Of the total, 10,700 acres or 16.6 percent are typed as spruce-fir (Table 1, Figure 1). Of the spruce-fir type, 2,800 acres are classed as heavy to severe defoliation and the remainder as moderate defoliation.

Seven of the 13 plots showed severe (class 4) current defoliation (Table 2, Figure 2).

As no survey was conducted in 1973 it is impossible to determine an egg-mass population trend. While counts are variable between plots the overall numbers are generally high enough to continue the current infestation (Table 2, Figure 3) unless some natural control factor, i.e., unfavorable winter or spring weather conditions, intervenes. Egg parasitism is not high enough to have any appreciable effect on population levels.

RECOMMENDATIONS

1. Forest personnel continue their surveillance detection program to locate and report evidence on continuing and new infestations.

2. The Forest should consider sale-area revision in problem areas.

3. Forest Pest Management will provide an evaluation of the spruce budworm situation in 1975.

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Entomologist

Table 1. Acreages by townships within the spruce budworm outbreak area - Ottawa National Forest - 1974.

T	R	Gross Acres	Type Acres
44	39	800	32
45	39	5,024	672
46	39	1,712	512
47	39	384	48
45	40	624	272
46	40	2,480	816
47	40	16,096	2,912
45	41	2,208	336
46	41	9,728	848
47	41	11,696	1,856
45	42	5,616	608
46	42	2,448	576
47	42	880	96
46	43	5,216	1,200
	Total	64,912	10,784

Table 2. Spruce budworm egg-mass counts and defoliation classes in the Ottawa National Forest outbreak areas - 1974.

Plot Number	Location	Total Egg-Masses Per Plot Viable	Parasitized	Defoliation Class [a]
1	T45N, R39W Sec. 9, F.R. 206	12	1	4
2	T47N, R40W Sec. 31 F.R. 178	14	3	3
3	T47N, R41W Sec. 13 F.R. 178	21	1	4
4	T47N, R41W Sec. 4, F.R. 178	0	0	1
5	T47N, R39W Sec. 6	6	1	3
6	T46N, R39W Sec. 4, F.R. 527	3	0	4
7	T45N, R39W Sec. 15 & 16	0	0	2
8	T46N, R41W Sec. 33 F.R. 527	10	1	4
9	T45N, R41W Sec. 5, F.R. 527	4	0	4
10	T46N, R43W Sec. 25 F.R. 525	3	0	2
11	T46N, R43W Sec. 21 F.R. 122	8	0	4
12	T46N, R43W Sec. 35 F.R. 122	15	0	4
13	T46N, R42W Sec. 24 F.R. 527	6	0	2

a/ Damage classes range from 0 (no defoliation) to 4 (severe defoliation).

Fig.2 Number of viable spruce budworm egg-masses at each plot location

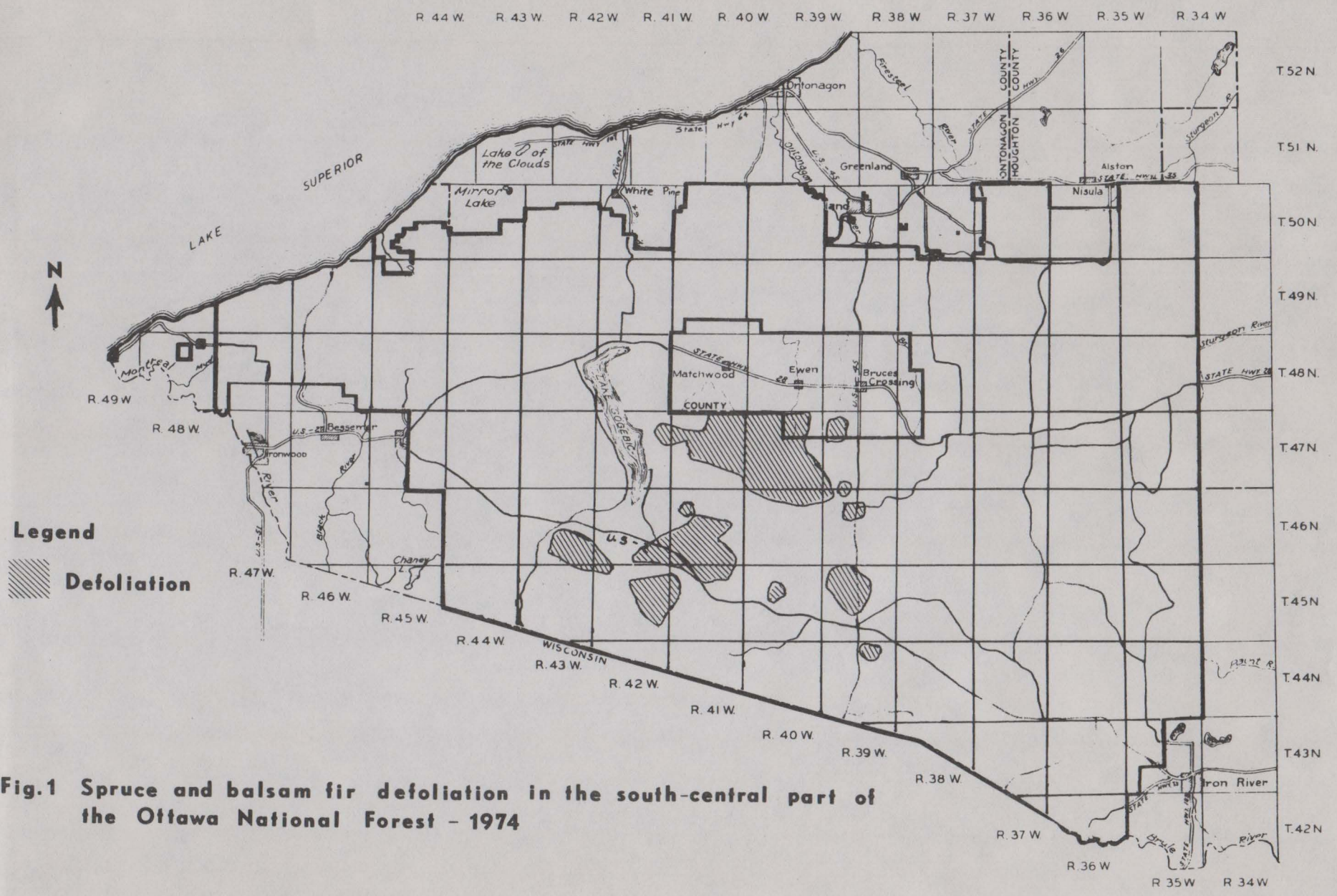

Fig.1 Spruce and balsam fir defoliation in the south-central part of the Ottawa National Forest - 1974